



の注入栓。

3. 考案の詳細な説明

「技術分野」

本考案は、プラスチックレンズ成形用環状ガスケットの注入筒を閉塞するための注入栓に関する。

「従来技術およびその問題点」

プラスチックレンズは、上型、下型および環状のガスケットで構成される型空間内に、重合すべき合成樹脂液を注入し、この合成樹脂材料を硬化させて形成される。環状のガスケットには、その周壁から、液注入用の注入筒が突出形成されている。合成樹脂液はこの注入筒を介して型空間内に注入され、注入後は、何らかの注入栓により、閉塞される。

ところが従来の注入栓は、注入筒の閉塞が不完全になったり、重合硬化反応中に脱落したりすることがあり、装着の信頼性に薄かった。また注入筒内に重合液が浸入して硬化し、成形されたレン



ズの周囲に、突起物として形成されるため、後にこの突起物を切断除去する作業が別途必要であった。

「考案の目的」

本考案は、このような従来のプラスチックレンズ成形用ガスケットの注入栓の問題点を解消し、装着後に脱落や液の漏洩が生じることがなく、しかも成形されるプラスチックレンズ外周に突起物が形成されることのない注入栓を得ることを目的とする。

「考案の概要」

本考案は、弾性材料により、環状ガスケットの注入筒に挿入される挿入される柱状部と；この柱状部の外端部に形成された大径頭部と；この柱状部の内端部に形成された、注入筒の内端部径より大径の抜け止めフランジとを一体に成形し、かつこの柱状部を、抜け止めフランジが注入筒内端部からガスケット内に突出したとき大径頭部が注入筒外端部に密接する長さ形成したことを特徴としている。



この構成によると、柱状部の弾性により、抜け止めフランジが注入筒の内端部、つまり環状ガスケットの内周面に密着した状態で係止されるため、漏液のおそれがない。しかも抜け止めフランジが合成樹脂液の注入筒内への浸入を確実に防止するため、成形されるプラスチックレンズ外周に突起物が形成されることもない。

「考案の実施例」

以下図示実施例について本考案を説明する。本考案による注入栓 10 は、弾性材料から形成されるもので、大径頭部 11 と、この大径頭部 11 に続く、これより細径の柱状部 12 と、この柱状部 12 の先端に形成された抜け止めフランジ 13 とを有し、全体として略柱状をなしている。柱状部 12 は、テーパ径部 12a と細径部 12b を有し、上記抜け止めフランジ 13 は、この細径部 12b の先端に形成されている。

合成樹脂材料から形成された環状ガスケット 20 は、その周壁 21 の一部に、注入筒 22 を突出形成しており、両端部に、上型 33 と下型 34



を嵌合させる嵌合孔 23 と 24 を備えている。注入筒 22 は、外側の大径部 22 a と、内端部側の小径部 22 b とを有しており、その全体の長さ L は、注入栓 10 の柱状部 12 の長さ l と等長か、これより若干長く形成されている。小径部 22 b の内径 d は、注入栓 10 の細径部 12 b の外径 d とほぼ一致し、また注入栓 10 の抜け止めフランジ 13 の径 D は、この径 d (注入筒 22 の内端部径) より大きい。また注入栓 10 の柱状部 12 のテーパ径部 12 a は、注入筒 22 の大径部 22 a 内に位置して、該大径部 22 a との間に隙間を生じさせる。

以上の環状ガスケット 20 には、その型嵌合孔 23 と 24 に、上型 33 と下型 34 を嵌めて型空間を形成する。このレンズ成形型に対して、次に注入筒 22 を通して、合成樹脂液を注入する。注入作業が終了すると、今度は、上に向けている注入筒 22 に本考案の注入栓 10 を挿入する。注入栓 10 の抜け止めフランジ 13 は、注入筒 22 の大径部 22 a から小径部 22 b に至って、圧縮変



形され、周壁 21 の内面に突出すると、弾性により復元して小径部 22 b の内端部周縁に係合する。このとき、注入栓 10 の大径頭部 11 は、注入筒 22 の外端部に密接し、その結果、注入栓 10 は、安定した状態で注入筒 22 に保持される。また柱状部 12 の細径部 12 b は、注入筒 22 の小径部 22 b と隙間なく嵌合するので、抜け止めフランジ 13 と小径部 22 b の内端面との係合による閉塞力に合わせて、注入筒 22 が閉塞され、液洩れが防止される。柱状部 12 のテーパ径部 12 a と注入筒 22 の大径部 22 a との間に形成される隙間は、注入栓 10 を注入筒 22 に挿入する際の空気の逃げ場所として動く。よって、注入栓 10 の挿入は、軽い力で行なうことができる。

注入した合成樹脂液が硬化した後は、環状ガスケット 20 は切断され除去され、さらに上型 33 と 34 を離型してプラスチックレンズが得られる。注入筒 22 の内端部は、注入栓 10 の抜け止めフランジ 13 によって閉塞されていたために、



成形されたプラスチックレンズの外周に、突起物が形成されることはない。突起物の代わりに、成形プラスチックレンズには抜け止めフランジ 13 による凹部が形成されることとなるが、抜け止めフランジ 13 の厚さは、十分小さくすることができるので、プラスチックレンズとしての支障が生じるおそれは全くない。

「考案の効果」

以上のように本考案の注入栓は、抜け止めフランジをガスケットの注入筒の内端部に密着させて、該注入筒を閉塞するので、閉塞が確実であり液洩れの生じるおそれがない。また抜け止めフランジと注入筒内端部との係合により、脱落も防止される。さらに抜け止めフランジが合成樹脂液の注入筒内への浸入を防止するから、成形されるプラスチックレンズ外周に突起物が形成されることもない。

4. 図面の簡単な説明

第 1 図は本考案による注入栓と環状ガスケット



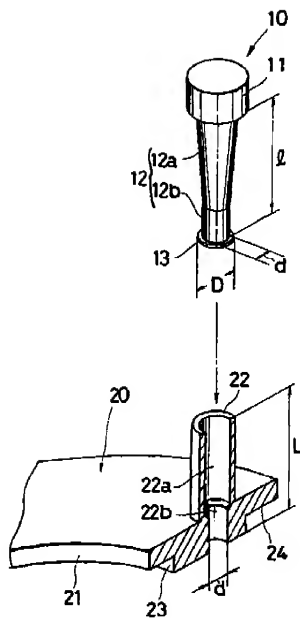
の注入筒の装着前の状態を示す、一部を断面とした斜視図、

第2図は同装着後の縦断面図である。

10…注入栓、11…大径頭部、12…柱状部、12a…テーパ径部、12b…細径部、13…抜け止めフランジ、20…環状ガスケット、21…周壁、22…注入筒、22a…大径部、22b…小径部、23、24…型嵌合孔、33、34…型。

実用新案登録出願人 旭光学工業株式会社

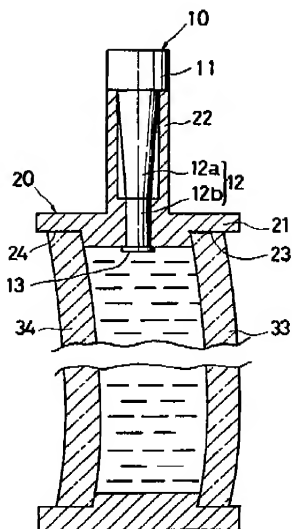
同代理人 三 浦 邦 夫



第 1 図

136 実開 4 - 63210

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 同代理人 三浦 邦 夫



第 2 図

L37 77 11 19

(Abstracts)

(D4)

Japanese Utility Model Disclosure No. 4-63210

Title: Pouring stopper for molding plastic lenses

Disclosure date: May 29, 1992

A circular gasket 20 forms a molding cavity of a plastic lens by an upper and lower mold 33, 34. A pouring cylinder 22 is projected from the circular gasket 20 so as to pour a monomer material to be polymerized. The pouring cylinder 22 is closed by a pouring stopper 10. The pouring stopper 10 comprises a pole section 12 to be inserted into the pouring cylinder 22, a large diameter head section 11 formed at an outside end of the pole section 12, and a slip preventing flange 13 having a large diameter than the pouring cylinder 22. The pouring stopper 10 is integrally molded by an elastic material. The length of the pouring stopper 10 is determined so that, when the slip preventing flange 13 is projected from the circular gasket 20, the large diameter head section 11 is positioned so as to tightly contact with the circular gasket 20.

An air space between a taper section 12a of the pole section 12 and the pouring cylinder 22 functions to receive an escape air from the air space when the pouring stopper 10 is inserted into the pouring cylinder 22.

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Applications (U)

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4F

Number of Claims: 1

Request for Examination: Not requested

15 _____ (Total of [] pages)

(54) Title of the Design: Injection stopper of gasket
for moulding plastic lenses

(21) Utility Model Application No.: H2-104982

(22) Filing Date: 5 May 1990

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SPECIFICATION

1. Title of the Design

Injection stopper of gasket for moulding plastic
5 lenses

2. Claim

An injection stopper for closing an injection pipe
of an annular gasket for moulding plastic lenses that
together with an upper mould and a lower mould defines
10 a space for moulding a plastic lens, and from which,
from a perimeter wall thereof, said injection pipe for
injecting a liquid synthetic resin to be polymerized
protrudes, which injection stopper of a gasket for
moulding plastic lenses is characterized by:

15 integral moulding from an elastic material of
columnar portion for insertion in said injection pipe;
a large-diameter head portion formed on an outer edge
portion of the columnar portion; and a stopper flange
formed on an inner edge portion of said columnar
20 portion that is larger in diameter than the inner edge
portion of said injection pipe,

and the formation of said columnar portion to a
length at which the large-diameter head portion comes
into close contact with the outer edge portion of the
25 injection pipe when the stopper flange protrudes from
the inner edge portion of the injection pipe.

3. Detailed Description of the Design

[Technical Field]

30 The present design relates to an injection stopper
that closes the injection pipe of an annular gasket for
moulding plastic lenses.

[Prior Art and Problems Therewith]

Plastic lenses are moulded by a process that
35 comprises injection of a liquid synthetic resin to be
polymerized into a moulding space defined by an upper
mould, a lower mould and annular gasket, and curing the
synthetic resin material. An injection pipe from which
a liquid is injected is formed to project from the

perimeter wall of the annular gasket. A liquid synthetic resin is injected into the moulding space by way of this injection pipe, and the injection pipe is closed following injection by some kind of injection stopper.

However, conventional injection stoppers imperfectly close the injection pipe and tend to fall out during the polymerization and curing reactions and, as a result, offer poor attachment reliability. In addition, the liquid polymer tends to pass into the injection pipe where it cures and subsequently forms a projection around the moulded lens which, accordingly, necessitates the implementation of a separate and additional operation to cut and remove this projection.

[Object of the Design]

It is an object of the present design to provide an injection stopper that does not fall out and does not leak once it has been attached and, moreover, that prevents the formation of a projection on the outer perimeter of the plastic lens being moulded and, accordingly, resolves the problems inherent to a conventional injection stopper of a gasket for moulding plastic lenses described above.

[Outline of Design]

The present design is characterized by integral moulding from an elastic material of a columnar portion inserted in an injection pipe; a large-diameter head portion formed on an outer edge portion of the columnar portion; and a stopper flange formed on an inner edge portion of the columnar portion that is larger in diameter than the inner edge portion of the injection pipe, and formation of the columnar portion to a length at which the large-diameter head portion comes into close contact with the outer edge portion of the injection pipe when the stopper flange protrudes from the inner edge portion of the injection pipe.

The adoption of this configuration alleviates concerns regarding liquid leak because, due to the

elasticity of the columnar portion, the stopper flange latches in a close contact state with the inner edge portion of the injection pipe, in other words, with the inner circumferential face of the annular gasket.

5 Moreover, because the stopper flange reliably prevents the liquid synthetic resin from passing into the injection cylinder, the formation of a projection on the outer perimeter of the plastic lenses being moulded is prevented.

10 [Embodiment of the Design]

The present design will be hereinafter described with reference to the embodiment described below. An injection pipe 10 according to the present design formed from an elastic material describes an overall
15 approximately columnar shape comprising a large diameter head portion 11, a columnar portion 12 continuous with and narrower in diameter than the large diameter head portion 11, and a stopper flange 13 formed on the tip end of this columnar portion 12. The
20 columnar portion 12 comprises a tapered diameter portion 12a and a narrow diameter portion 12b, and the aforementioned stopper flange 13 being formed on the tip end of this narrow diameter portion 12b.

An injection pipe 22 is formed to protrude from
25 one part of a perimeter wall 21 of an annular gasket 20 formed from a synthetic resin material in which, in both end portions, fitting holes 23 and 24 into which an upper mould 33 and a lower mould 34 fit are provided. The injection pipe 22 comprises an outer-side
30 large diameter portion 22a and an inner edge portion-side small diameter portion 22b, an overall length L thereof being formed to be equivalent to, or slightly longer than, a length l of the columnar portion 12 of the injection stopper 10. An inner diameter d of the
35 small diameter portion 22b is essentially equivalent to an outer diameter d of the narrow diameter portion 12b of the injection stopper 10, and a diameter D of the stopper flange 13 of the injection stopper 10 is larger than this diameter d (inner edge portion diameter of

injection pipe 22). In addition, the tapered diameter portion 12a of the columnar portion 12 of the injection stopper 10 is arranged to lie within the large diameter portion 22a of the injection pipe 22 in such a way that
5 it forms an interval with the large diameter portion 22a.

The upper mould 33 and lower mould 34 are fitted into the mould fitting holes 23 and 24 of the annular gasket 20 to define a moulding space. A liquid
10 synthetic resin fluid is then introduced into this mould for moulding lenses by way of the injection pipe 22. Subsequent to the completion of the injection operation, the injection stopper 10 of this design is inserted into the upward pointing injection pipe 22.
15 The stopper flange 13 of the injection stopper 10 is compression-deformed from the large diameter portion 22a to the small diameter portion 22b of the injection pipe 22 and, when it protrudes into the inner surface of the perimeter wall 21, it is restored due to its
20 elasticity in such a way as to engage with the inner edge portion perimeter edge of the small diameter portion 22b. At this time, the large diameter head portion 11 of the injection stopper 10 comes into close contact with the outer edge portion of the injection
25 pipe 22 and, as a result, the injection stopper 10 is held in a stable state in the injection pipe 22. In addition, the narrow diameter portion 12b of the columnar portion 12 is fitted with the small diameter portion 22b of the injection pipe 22 without interval
30 therebetween whereupon, accordingly, in combination with a closure force produced by the engagement between the stopper flange 13 and the inner edge surface of the small diameter portion 22b, the injection pipe 22 is closed and liquid leak is prevented. The interval
35 formed between the tapered diameter portion 12a of the columnar portion 12 and the large diameter portion 22a of the injection pipe 22 serves as location into which air escapes when the injection stopper 10 is inserted into the injection pipe 22. Accordingly, insertion of

the injection stopper 10 can be effected with little force.

After the injected liquid synthetic resin has cured, the annular gasket 20 is cut and removed and, 5 furthermore, the upper mould 33 and lower mould 34 are released and a plastic lens is obtained. Because the inner edge portion of the injection pipe 22 is closed by the stopper flange 13 of the injection stopper 10, the formation of a projection on the outer perimeter of 10 the moulded plastic lens is prevented. Although the stopper flange 13 produces an indentation rather than a projection in the moulded plastic lens, the thickness of the stopper flange 13 can be reduced to a size small enough to alleviate any concerns about interference 15 with the plastic lens.

[Effect of the Design]

According to the injection stopper of the present design described above, because the injection pipe is closed by the provision of a stopper flange in close 20 contact with the inner edge portion of the injection pipe of the gasket, the injection pipe is reliably closed and concerns about liquid leak are alleviated. In addition, fall-out of the injection stopper is prevented by the engagement between the stopper flange 25 and the injection pipe inner edge portion. Furthermore, because the stopper flange prevents the liquid synthetic resin fluid from passing into the injection pipe, the formation of a projection on the outer perimeter of the plastic lens being moulded is 30 prevented.

4. Brief Description of the Design

FIG. 1 is a partial cross-sectional perspective view of the pre-mounted state of the injection pipe and 35 injection pipe of the annular gasket based on the present design; and

FIG. 2 is a cross-sectional view of the mounted state of the same.

10 Injection stopper, 11 Large diameter head portion,
12 Columnar portion, 12a Tapered diameter portion, 12b
Narrow diameter portion, 13 Stopper flange, 20 Annular
gasket, 21 Perimeter wall, 22 Injection pipe, 22a Large
5 diameter portion, 22b Small diameter portion, 23, 24
Mould fitting holes, 33, 34 Moulds

Utility Model Registration Applicant: Asahi Optical
Co., Ltd.

10 Agent: Kunio MIURA